GaAs IC SPST Switch
Reflective DC–10 GHz

Alpha

AS018R1-01, AS018R1-10

Features

- Broadband DC–10 GHz
- Reflective
- 7 Lead Hermetic Package
- Capable of Meeting MIL-STD Requirements[6]

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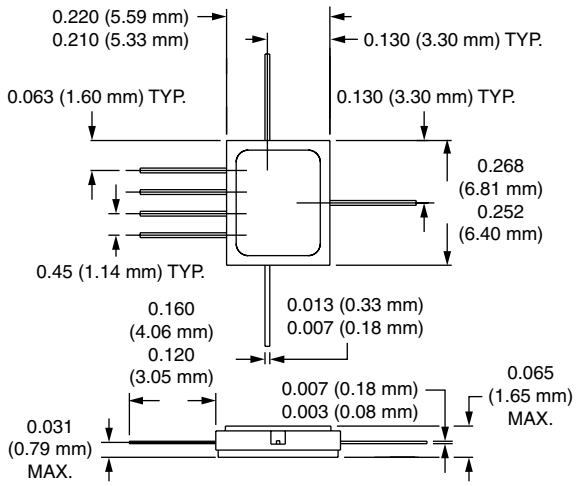

Description

The AS018R1-01 is a GaAs IC FET SPST reflective switch. This device is ideal for microstrip applications and has optimum broadband performance, since all leads are RF isolated. This product is useful as a modulator and switch in high reliability and commercial applications. The AS018R1-10 is the gullwing version of this device for surface mount applications.

Electrical Specifications at 25°C

Parameter[1]	Frequency[5]	Min.	Typ.	Max.	Unit
Insertion Loss[2]	DC–2.0 GHz		0.6	0.8	dB
	DC–4.0 GHz		0.8	1.0	dB
	DC–8.0 GHz		1.8	2.0	dB
	DC–10.0 GHz		2.0	2.5	dB
Isolation	DC–2.0 GHz	50	55		dB
	DC–4.0 GHz	40	50		dB
	DC–8.0 GHz	30	40		dB
	DC–10.0 GHz	25	35		dB
VSWR[3]	DC–2.0 GHz		1.2:1	1.3:1	
	DC–4.0 GHz		1.4:1	1.5:1	
	DC–8.0 GHz		1.6:1	1.8:1	
	DC–10.0 GHz		1.8:1	2.0:1	

Operating Characteristics at 25°C

Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, Fall (10/90% or 90/10% RF)			3		ns
	On, Off (50% CTL to 90/10% RF)			6		ns
	Video Feedthru[4]			20		mV
Input Power for 1 dB Compression	0/-5 V	0.5–10 GHz		24		dBm
		0.001 GHz		16		dBm
Intermodulation Intercept Point (IP3)	For Two-tone Input Power 13 dBm	0.5–10 GHz		46		dBm
		0.001 GHz		35		dBm
Control Voltages	V_{Low} = 0 to -0.2 V @ 20 µA Max.					
	V_{High} = -3 V to -6 V @ 200 µA Max.					

1. All measurements made in a 50 Ω system, unless otherwise specified.
2. Insertion loss changes by 0.003 dB/°C.
3. Insertion loss state.
4. Video feedthru measured with 1 ns risetime pulse and 500 MHz bandwidth.
5. DC = 300 kHz.
6. See Quality/Reliability section.

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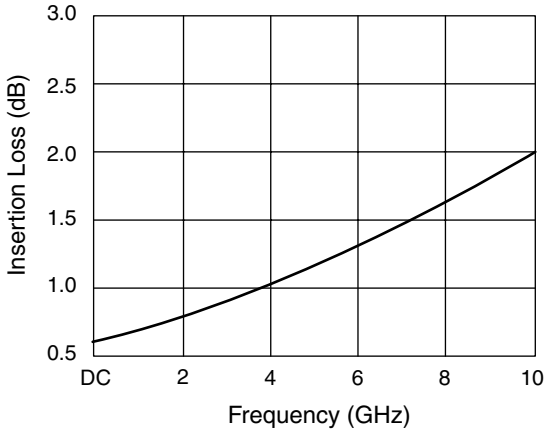
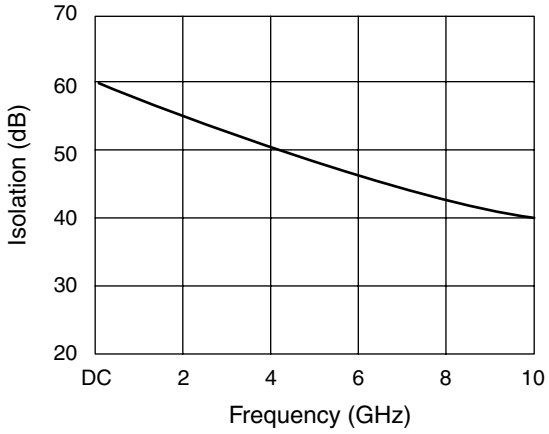
Typical Performance Data



Insertion Loss vs. Frequency



Isolation vs. Frequency

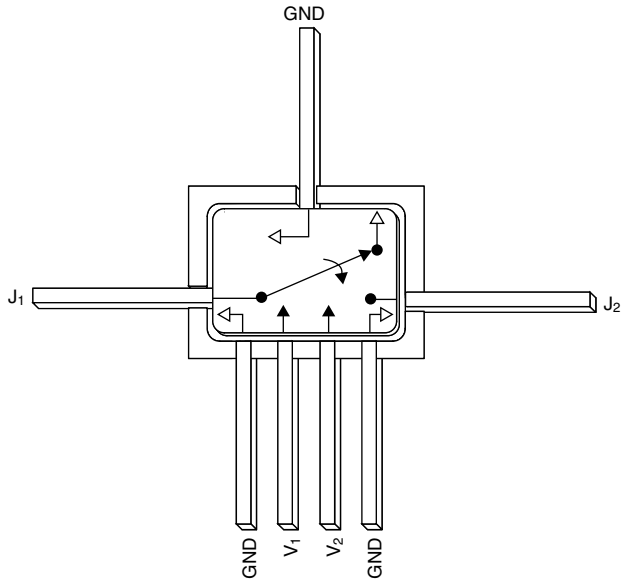
Truth Table

V_1	V_2	J_1–J_2
0	-5	Isolation
-5	0	Insertion Loss

Absolute Maximum Ratings

Characteristic	Value
RF Input Power (RF In)	1 W
Control Voltage (V_C)	+0.2 V, -7.0 V
Operating Temperature (T_{OP})	-55°C to +125°C
Storage Temperature (T_{ST})	-65°C to +150°C
Thermal Resistance (Θ_{JC})	83°C/W

Pin Out



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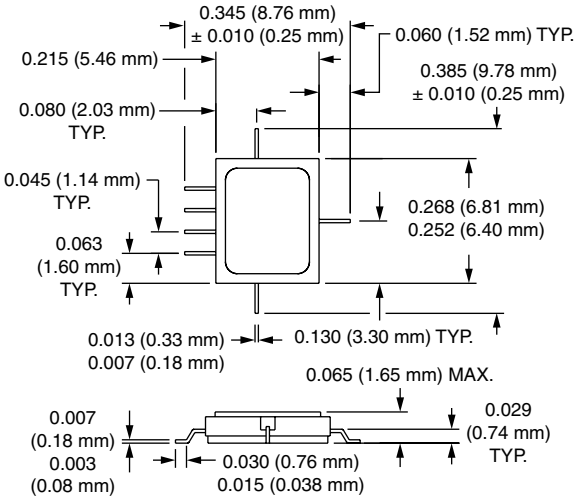

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